

REMARKS

The present application was filed on January 28, 2004 with claims 1 through 19. Claims 1 through 19 are presently pending in the above-identified patent application. Claim 1, 6, 12 and 16 is proposed to be amended herein.

This amendment is submitted pursuant to 37 CFR §1.116 and should be entered. The Amendment places all of the pending claims, i.e., claims 1-19, in a form that is believed allowable, and, in any event, in a better form for appeal. It is believed that examination of the pending claims as amended, which are consistent with the previous record herein, will not place any substantial burden on the Examiner. Applicants note that the present amendment is merely correcting errors related to antecedent basis that were first pointed out by the Examiner in the present Office Action.

The amendments to independent claims 1, 12 and 16 are to correct a typographical error.

In the Office Action, the Examiner rejected claims 1-4, 7-10 and 12-19 under 35 U.S.C. §101 as being directed to non-statutory subject matter. In addition, the Examiner rejected claim 6 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. The Examiner rejected claim 1, 4, 12, 15-16 and 19 under 35 U.S.C. §103(a) as being unpatentable over Barsalou et al. ("Updating Relational Databases through Object-Based Views") in view of Wang et al. ("Updating XQuery Views Published over Relational Data: A Round-Trip Case Study").

Section 101 Rejection

Claims 1-4, 7-10 and 12-19 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. The Examiner asserts that the claims do not provide a useful, concrete and tangible result. To the contrary, however, by their preamble and by the body of each claim, the claims all produce a determination (e.g., an indication) of whether an update to an XML document can be reflected in an underlying relational database based on an assigning category. Applicants submit that this is a useful, concrete and tangible result.

The Examiner asserts that "the claimed subject matter fails to produce a result that is limited to have real world value." As acknowledged by the Examiner, the claimed subject matter provides for determining whether or not an update can be made of a database. This knowledge has separate and valuable utility and satisfies section 101. The Supreme Court has clearly stated that the "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to patentability of a process claim." *Gottshalk v. Benson*, 409 U.S. 63, 70, 175 U.S.P.Q. (BNA) 676 (1972). In other words, claims that require some kind of *transformation* of subject matter, which has been held to *include*

intangible subject matter, such as *data* or signals, that are representative of or constitute physical activity or objects have been held to comply with Section 101. *See, for example, In re Warmerdam*, 31 U.S.P.Q.2d (BNA) 1754, 1759 n.5 (Fed. Cir. 1994) or *In re Schrader*, 22 F.3d 290, 295, 30 U.S.P.Q.2d (BNA) 1455, 1459 n.12 (Fed. Cir. 1994).

The determination of whether an update can be made in a database based on an assigned category is a *transformation* under this standard. This output can optionally be output to a user. Applicants respectfully request withdrawal of the Section 101 rejection.

Section 112 Rejection

Claim 6 has been amended in accordance with the Examiner's suggestions. Applicants respectfully request withdrawal of the section 112 rejection.

Independent Claims 1, 12 and 16

Independent claims 1, 12 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Barsalou et al. in view of Wang et al. With regard to claim 1, for example, the Examiner asserts that Barsalou et al., as modified by Wang et al., teaches assigning at least one of a plurality of categories to each of said nodes, wherein said plurality of categories are based on a cardinality relationship indicated by one or more correlation predicates and one or more foreign key constraints in said underlying relational database; and determining whether said update to said XML document can be reflected in said underlying relational database based on said assigning category.

Applicants previously submitted an affidavit under 37 C.F.R. §1.131. The affidavit was signed by all of the inventors named on the present application. Applicants submit that the affidavit and the exhibits attached thereto evidence the reduction to practice of an invention falling within independent claims 1, 12 and 16 at least as early as November 14, 2002, and thus prior to the September, 2003 publication date of the Wang reference. Applicants are therefore entitled to overcome the §103(a) rejection.

In the response to arguments section of the final Office Action, the Examiner acknowledges that the rule 131 affidavit meets the burden of clearly showing how the submitted evidence supports conception of the claimed invention.

The Examiner suggests, however, that the submitted evidence is insufficient to establish a reduction to practice. The Examiner asserts that the results are "merely mentioned without being reported. A mere allegation of a reduction to practice is not sufficient proof of reduction to practice."

As stated in Par. 4 of the original Affidavit, "The invention was reduced to practice by implementing it in software code prior to or in conjunction with the preparation of the paper. The

software code embodying the invention was used to obtain the initial experimental results referred to in Section 4.4 (entitled Implementation) of the cited paper. The cited test results indicating correct operation are evidence of an actual reduction to practice of one embodiment of the present invention.”

In addition to reporting the results in section 4, the implemented algorithm (i.e., the Reduction to Practice) is discussed throughout the paper. The *implemented* algorithm contained an Information Collection Module and a View-Update Execution Module. See, Par. 4.4 of Exh. 2

The Information-Collection Module collects the static information described in Section 4.2 of the paper. The view-relationship graph is then translated into update plans that are persisted in the system and later used at run time. *Id.* Among other things, the *implementation* collects the category of the node. See, Section 4.2. This is obtained from the view query that defines the XML view and the algorithms defined in Section 3. The *implementation* of the Information-Collection Module was a reduction to practice of a software program that assigned at least one of a plurality of categories to each of the nodes, where the plurality of categories are based on a cardinality relationship indicated by one or more correlation predicates and one or more foreign key constraints in the relational database. See, Aff. at par. 10.

The View-Update Execution Module provides the interface for deletion, insertion, movement, and replacement (deleting the old node and inserting the new node in one transaction) on a given XML node at run time. The execution module interacts with the relational database and the DOM interface to access the underlying data for the XML view. See, Par. 4.4. The *implementation* of the View-Update Execution Module was a reduction to practice of a software program that determined whether an update to the XML document can be updated in the underlying relational database based on an assigned category. See, Aff. at par. 14.

The Examiner asserts that the results are “merely mentioned without being reported.” To the contrary, however, the paper notes that the “results show that the system operates correctly, and the performance is commensurate with direct execution without use of a view.” Sec. 4.4 As recited in the preamble of each independent claim, the present invention provides methods and apparatus for method for determining if an update to an XML document can be reflected in an underlying relational database. Thus, the nature of this invention is not easily amenable to numerical results. When the paper reports that the system operated correctly, it means that on test data, the system properly determined an update to an XML document can be reflected in an underlying relational database.

The Examiner also asserts that a "mere allegation of a reduction to practice is not sufficient proof of reduction to practice." The reporting of experimental results in a paper submitted for publication in ACM SIGMOD (Special Interest Group On Management of Data) 2003 is more than a mere allegation. The paper was submitted to a committee of peers for publication at the premier conference for practitioners in this field. This is a reporting of experimental results that was prepared for review by peers in this field.

The details of what was implemented is described throughout the paper, and the results are reported in section 4.4. This reporting of results was written for an audience of peers, and provided a level of detail that was appropriate for such an audience and believed to be sufficient to warrant publication.

Applicants respectfully request the withdrawal of the rejection of independent claims 1, 12 and 16.

Dependent Claims 2-11, 13-15 and 17-19

Claims 2-11, 13-15 and 17-19 are dependent on independent claims 1, 12 and 16, and are therefore patentably distinguished over Barsalou et al. and Wang et al., alone or in combination, because of their dependency from independent claims 1, 12 and 16 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

All of the pending claims following entry of the amendments, i.e., claims 1-19, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,



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